

ABSTRACT OF THE DISCLOSURE

A method and apparatus are provided for planarizing a material layer on a substrate. In one aspect, a method is provided for processing a substrate including forming a passivation layer on a substrate surface, polishing the substrate in an electrolyte solution, applying an anodic bias to the substrate surface, and removing material from at least a portion of the substrate surface. In another aspect, an apparatus is provided which includes a partial enclosure, polishing article, a cathode, a power source, a substrate carrier movably disposed above the polishing article, and a computer based controller to position a substrate in an electrolyte solution to form a passivation layer on a substrate surface, to polish the substrate in the electrolyte solution with the polishing article, and to apply an anodic bias to the substrate surface or polishing article to remove material from at least a portion of the substrate surface.